

2.0 CONDITION CLASS

The Forest Inventory and Analysis (FIA) plot is a cluster of four subplots in a fixed pattern. Subplots are never reconfigured or moved in order to confine them to a single condition class; a plot may straddle more than one condition class. Every plot samples at least one condition class: the condition class present at plot center (the center of subplot 1). Delineation and mapping of condition classes is a major departure from past inventory practices, and is intended to allow flexible post stratification of data for a variety of purposes.

2.1 DETERMINATION OF CONDITION CLASS

2.1.1 Step 1: Delineate the plot area by CONDITION STATUS

The first attribute considered when defining a condition class is **CONDITION STATUS**. The area sampled by a plot is assigned into condition classes based upon the following differences in **CONDITION STATUS**:

1. Accessible forest land
2. Nonforest land
3. Noncensus water
4. Census water
5. Denied access area
6. Area too hazardous to visit
7. Area that is not in the sample, e.g., in Canada or Mexico.
9. Lost subplot (Sample Kind = 2, forest conditions only)

Accessible forest land defines the population of interest for FIA purposes. This is the area where most of the data collection is conducted. Only delineate between conditions 2-7 above on subplots that have at least one accessible forest land condition. Do **not** delineate between nonforest conditions 2-7 above on completely nonforest subplots.

2.1.2 Step 2: Further subdivide Accessible Forest land by 7 delineation variables

Any condition class sampled as accessible forest land may be further subdivided, in order of listed priority, into smaller condition classes if distinct, contrasting condition classes are present because of variation within the sampled area in any of the following attributes:

1. New Past Condition Status (ITEM R202, reversions/landclearings)
2. Reserved Status (ITEM 2401)
3. Owner Group (ITEM 2402)
4. Forest Type (ITEM 2403)
5. Stand Size Class (ITEM 2404)
6. Regeneration Status (ITEM 2405)
7. Tree Density (ITEM 2406)

No other attribute shall be the basis for recognizing contrasting accessible forest land condition classes. For most accessible forest condition classes recognized, several “ancillary attributes” that help describe the condition will be collected, but will not be used for delineation purposes.

2.1.3 Step 3: Subdivide Nonforest Land conditions

Delineate between conditions 2-7 in 2.1.1 on subplots that have at least one accessible forest land condition. Do **not** delineate between conditions 2-7 in 2.1.1 on completely nonforest subplots. Nonforest land (code 2 in 2.1.1) is recorded as one condition, with the following exceptions:

- 1. Land cleared areas: Nonforest areas that have been landcleared since the last inventory are separated from other nonforest conditions that were nonforest at the previous survey.
- 2. Procedural changes: Nonforest areas that are reclassified to forest due to procedural changes are separated from other conditions on the plot.

These exceptions are recorded as separate nonforest conditions in order to capture the amount of real and procedural change between surveys.

2.2 CONDITION CLASS ATTRIBUTE LIST

Condition Class Number	=	
Present Land Use	=	Required Attributes-
Present Condition Status	=	Attributes required for every
New Past Land Use	=	condition class sampled on a plot
New Past Condition Status	=	
Old Land Use	=	
Nonforest Year	=	Required on landclearings only
Similar Identified Condition	=	Required on reversions and landclearings only

For each condition classified as accessible forest land, then a classification is required for each of the following attributes:

Reserved Status	=	
Owner Group	=	Condition Defining Attributes-
Present Forest Type	=	Attributes where a change
Stand Size	=	causes a separate within forest
Present Regeneration Status	=	condition class
Tree Density	=	
New Past Forest Type	=	Attributes that describe change
New Past Regeneration Status	=	between inventories
Owner Class	=	
Private Owner Industrial Status	=	
Artificial Regeneration Species	=	
Stand age	=	National Ancillary Attributes-
Disturbance	=	Changes do not delineate a
Disturbance Year	=	new condition class.
Treatment	=	
Treatment Year	=	
Physiographic Class	=	

Tract Size (Total Acres)	=	
Tract Size (Percent forest)	=	
Site Class	=	Regional Ancillary Attributes-
Stand Structure	=	Changes do not delineate a
Operability	=	new condition class.
Distance to Water Source	=	
Water Source	=	
Fire	=	
Grazing	=	

When classifying condition status, land use, reserved status, owner group, fire, and grazing, base the classification on what is present within the area defined by the 24 ft fixed radius subplot. When classifying all other condition class variables, base the classification on the 58.9 ft fixed radius annular plot.

2.3 DELINEATING CONDITION CLASSES DIFFERING IN CONDITION STATUS:

The first step in delineating condition classes is to recognize differences in CONDITION STATUS. The most common difference is adjacent accessible forest land and nonforest land. Adjacent accessible forest land and nonforest land condition classes are recognized only if each of the two prospective condition classes is at least 1.0 ac in size, and each is at least 120.0 ft in width. These size and width minimums apply to both accessible forest land and nonforest land.

Within an accessible forest land condition class, unimproved roads, rock outcrops, and natural nonforest openings less than 1.0 ac in size and less than 120.0 ft in width are considered forest land and are not delineated and classified as a separate nonforest condition class.

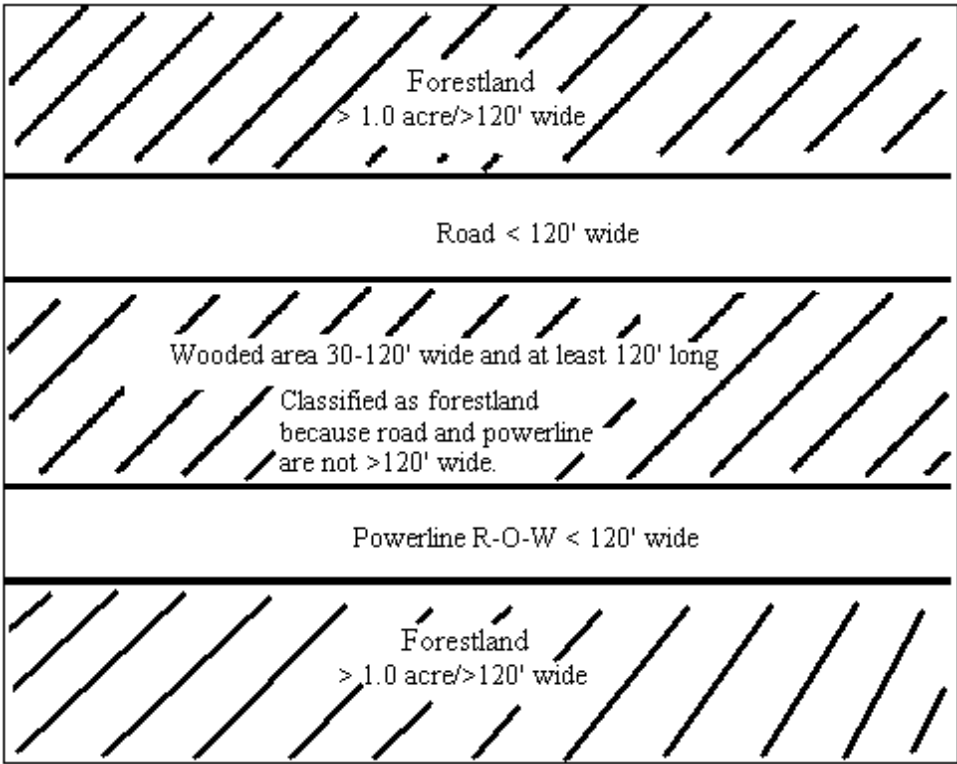
Within a nonforest land condition class, forested areas or linear strips of trees less than 1.0 ac in size and less than 120.0 ft in width are considered part of the nonforest condition class.

Five exceptions to these size and width requirements apply:

- 1. Developed nonforest conditions: human-caused nonforest land condition classes such as homes or cabins that are less than 1.0 ac in size and 120.0 ft in width and are surrounded by forest land. All extensions from developed nonforest inclusions are nonforest condition classes regardless of length or width. There are three kinds of developed nonforest conditions that do not have to meet area or width requirements.
 - a) Improved roads: paved roads, gravel roads, or improved dirt roads regularly maintained for long-term continuing use. Unimproved traces and roads created for skidding logs are not considered improved roads.
 - b) Maintained rights-of-way: corridors created for railroads, power lines, gas lines, and canals that are periodically treated to limit the establishment and growth of trees and shrubs.

- c) Developments: structures and the maintained area next to a structure, all less than 1.0 ac in size and surrounded by forest land. Examples of developments are houses or trailers on very small lots, communication installations in a small cleared area within forest land, and barns and sheds.

However, these areas must still be at least 120.0 ft wide to stop a forest land condition from continuing across the nonforest entity. The boundaries of forested areas are nonforest areas 120.0 feet or greater. Developed nonforest entities less than 120 feet wide or 1.0 ac are not forest boundaries, even though they are delineated as nonforest conditions. See diagram below:

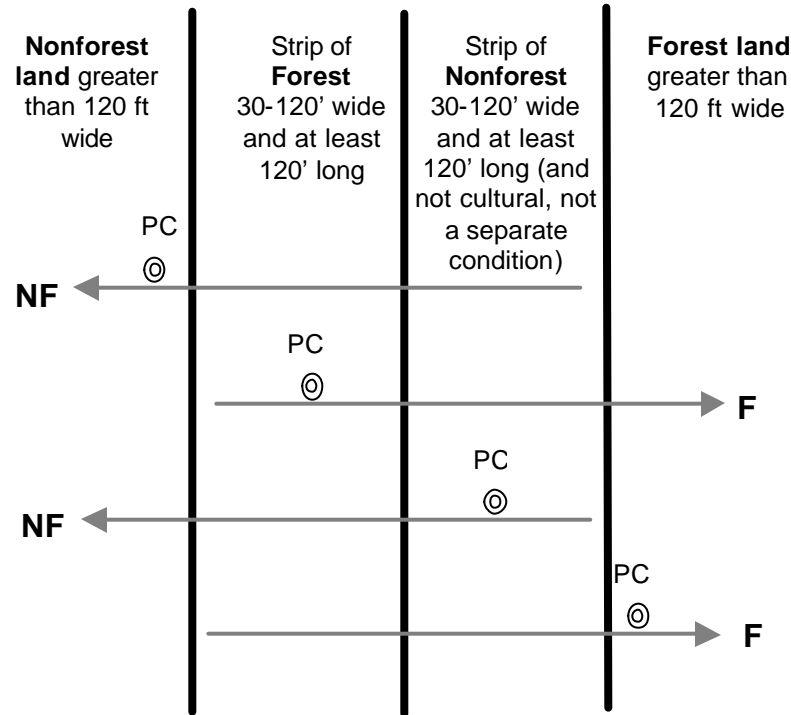


- 2. Distinct, alternating strips of forest and nonforest land: this situation occurs when a plot or subplot samples a condition class that is at least 30.0 ft wide and at least 120.0 ft in length. The condition class is one of a series of parallel strips of forest and nonforest land in which none of the strips meet the minimum width requirement. If the strip of land is less than 30.0 feet wide, or less than 120.0 ft in length, then it is included with the surrounding land use.

For many small intermingled strips, determine the total area that the alternating strips occupy, and classify according to the CONDITION STATUS (forest land or nonforest land) that occupies the greater area. If the area of alternating strips is so large or indistinct as to make a total area determination impractical, then classify the sample as forest land.

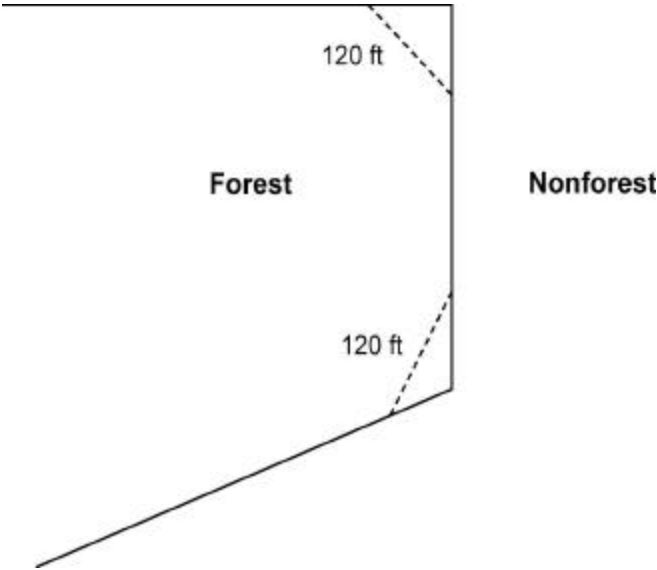
For two alternating strips of forest and nonforest between two qualifying areas of nonforest land and forest land, see Figure 2. Any subplot that falls in the alternating strips uses the rule. Any subplot that falls in assigned nonforest / forest is assigned that type.

Figure 2. Example of alternating strips of forested and non-forested conditions.



3. The 120 foot minimum width for determining forest boundaries does not apply when a corner angle is 90 degrees or greater (Figure 3).

Figure 3. Illustration of the 90-degree corner rule. The triangle shaped wedges are forest, regardless of where the subplot center lands.



4. Linear water features: natural water features that are linear in shape such as streams and rivers. A linear water feature must meet the definition for Census or noncensus water to be nonforest area. Therefore, a linear water feature must be at least 30.0 ft wide and cover at least 1.0 ac. The width of a linear water feature is measured across its channel between points on either side up to which water prevents the establishment and survival of trees. To determine whether a linear water feature qualifies as nonforest, rely on all available information on hand such as aerial photos, topographic maps, past survey land calls, and ocular estimates at the current survey visit. Linear water features which do not meet the definition for Census or noncensus water should be classified as forest land only if bounded by forest land on both shores. Crews are NOT expected to measure the length of a linear water feature to determine if it meets the 1.0 ac requirement; use professional judgment and common sense on any linear water feature.
5. Hazardous, denied access, and lost subplots within accessible forest land are delineated, regardless of size, as a separate condition.

2.3.1 ACCESSIBLE FOREST LAND

Land that is within the population of interest, is accessible, is on a subplot that can be occupied at subplot center, can safely be visited, and meets (a) **and** (b) from the following criteria:

- (a) the condition is at least 10-percent stocked by trees of any size (Appendix 2) or has been at least 10-percent stocked in the past. Additionally, the condition is not subject to nonforest use(s) that prevent normal tree regeneration and succession such as regular mowing, intensive grazing, or recreation activities;

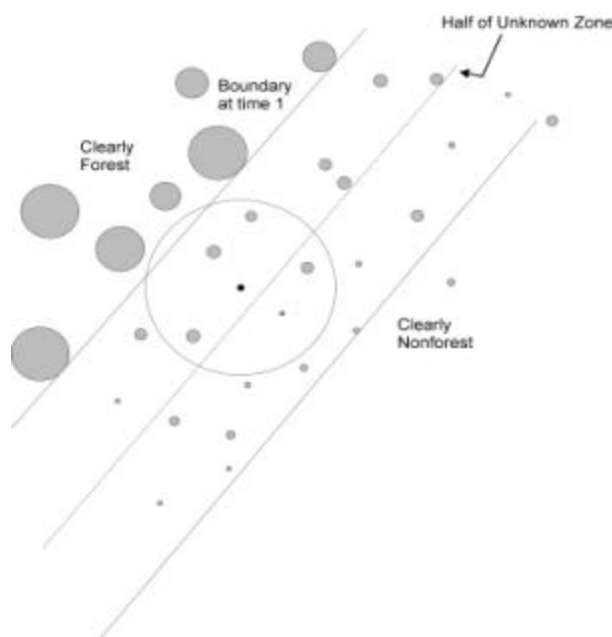
and

- (b) the prospective condition must be at least 1.0 ac in size and 120.0 ft wide measured stem-to-stem. Forested strips must be 120.0 ft wide for a continuous length of at least 363.0 ft in order to meet the acre threshold. Forested strips that do not meet these requirements are classified as part of the adjacent nonforest land.

Transition zones and forest/nonforest encroachment: When an accessible forest land condition encroaches into a nonforest condition, the border between forest and nonforest is often a gradual change in tree cover or stocking with no clear and abrupt boundary. In addition, it may be difficult to determine exactly where the forested area meets the minimum stocking criteria and where it does not. For these cases, determine where the land clearly meets the 10% minimum forest land stocking, and where it clearly is less than required stocking; divide the zone between these points in half, and determine the side of the zone on which the subplot center is located. Classify the condition class of the subplot based on this line (Figure 4).

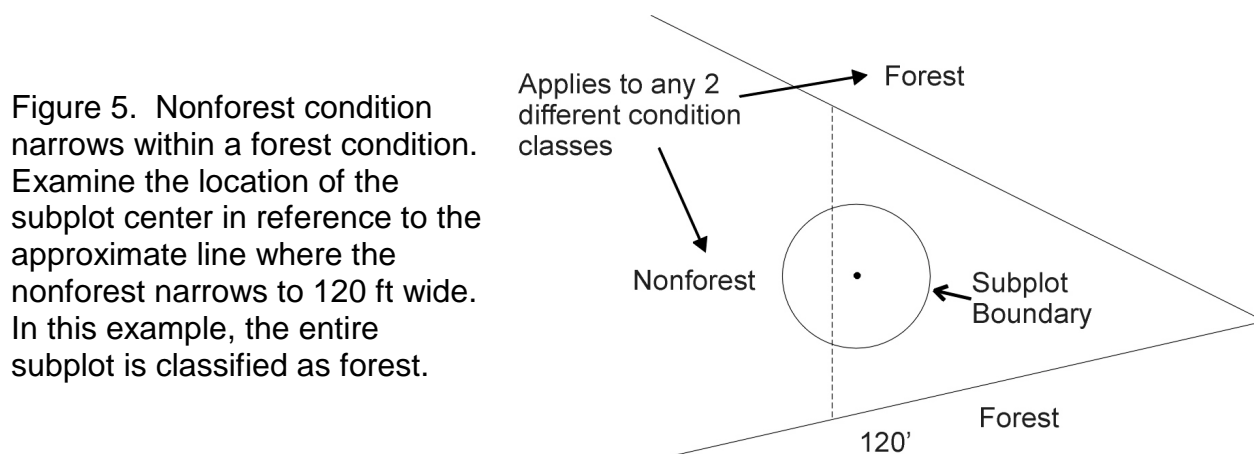
For example, at measurement time 1, a clear and distinct boundary existed between the forest and nonforest condition classes. At time 2, however, there now exists a zone of regeneration or small diameter trees between the previous forest condition and where the nonforest clearly remains. If the zone of encroachment is clearly stocked where it meets the nonforest, classify the entire zone as forest. If the zone is clearly nonforest up to the original stand, call it all nonforest. If the encroachment or transition zone is not clearly stocked where it meets the nonforest, determine where it is clearly stocked (forest) and where it is clearly not stocked (nonforest); divide this zone in half, and classify the entire **unknown zone** based on which side of the line the subplot center falls.

Figure 4. Example of classifying the condition class of a subplot in a transition zone with forest/nonforest encroachment.



Treated strips: Occasionally, crews will come across plantations of trees, in which rows of trees alternate with strips of vegetation that have been bulldozed, mowed, tilled, treated with herbicide, or crushed. Because these strip treatments are conducted to optimize growth or to release the stand, the areas are considered forest land, and the treatment is considered a timber stand improvement operation. Do not confuse these practices with similar treatments on nonforest lands such as yards or rights-of-way. Contact with the landowner may help determine the intent of a treatment.

Indistinct boundary due to the minimum-width definition: Do not subdivide subplots where a condition class may change due only to the forest vs. nonforest minimum width (120.0 ft) definition. Although the point where the definition changes from forest to nonforest creates an invisible “line” between conditions, **this definitional boundary is not distinct and obvious**. See Figure 5. Where the point of the definition change occurs on the subplot, determine only if the subplot center is on the forest or nonforest side of that approximate boundary, and classify the entire subplot based on the condition of the subplot center. If the boundary crosses through the center of the subplot, classify the subplot as the condition it most resembles. If the boundary occurs between subplots, classify each subplot based on its relation to the definitional boundary.



2.3.2 NONFOREST LAND

Nonforest land is any land within the sample that does not meet the definition of accessible forest land or any of the CONDITION STATUS values defined in Sections 2.3.3 through 2.3.7. To qualify, the area must be at least 1.0 ac in size and 120.0 ft wide, with 5 exceptions discussed previously at the beginning of section 2.3. Do not consider evidence of "possible" or future development or conversion. A nonforest land condition will remain in the sample and will be examined at the next occasion to see if it has become forest land.

2.3.3 NONCENSUS WATER

Lakes, reservoirs, ponds, and similar bodies of water 1.0 ac to 4.5 ac in size. Rivers, streams, canals, etc., 30.0 ft to 200 ft wide.

2.3.4 CENSUS WATER

Lakes, reservoirs, ponds, and similar bodies of water 4.5 ac in size and larger; and rivers, streams, canals, etc., more than 200 ft wide (1990 U.S. Census definition).

2.3.5 DENIED ACCESS

Any area within the sampled area on a plot on which access is denied by the legal owner of the land the plot falls on, or by an owner of the only reasonable route to the plot. There are no minimum area or width requirements for a condition class delineated by denied access. Because a denied-access condition can become accessible in the future, it remains in the sample and is re-examined at the next occasion to determine if access is available.

2.3.6 HAZARDOUS

Any area within the sampled area on plot that cannot be accessed because of a hazard or danger, for example cliffs, quarries, strip mines, illegal plantations, temporary high water, etc. Although the hazard is not likely to change over time, a hazardous condition remains in the sample and is re-examined at the next occasion to determine if the hazard is still present. There are no minimum size or width requirements for a condition class delineated by a hazardous condition.

2.3.7 NOT IN THE SAMPLE

Any area within the sampled area on a plot that is not within the boundaries of the sample population of interest. Examples of areas out of the sample would be plots or portions of plots falling in Mexico or Canada. A condition outside the sample area remains in the potential population of interest and is re-examined at the next occasion to determine if it becomes part of the population of interest. There are no minimum size or width requirements for a condition class delineated as out of the sample.

2.4 DELINEATING CONDITION CLASSES WITHIN ACCESSIBLE FOREST LAND

2.4.1 DELINEATING BASED ON THE SIX CONDITION DEFINING ATTRIBUTES

Accessible forest land is subdivided into condition classes that are based on differences in RESERVED STATUS, OWNER GROUP, FOREST TYPE, STAND SIZE CLASS, REGENERATION STATUS, and TREE DENSITY. Section 2.1 applies when delineating contrasting forest condition classes. Specific criteria apply for each of the six attributes and are documented in ITEMS 2401-2406. "Stands" are defined by plurality of stocking for all live trees that are not overtopped.

Additionally, each separate forest condition class recognized within accessible forest land must be at least 1.0 ac in size and at least 120.0 ft in width, except riparian forest areas (see general instruction 4 below). If prospective contrasting forest land condition classes do not each meet these minimum size and width requirements, the most similar prospective conditions should be combined until these minimums are attained.

No other attribute shall be the basis for recognizing contrasting condition classes. For each condition class recognized, there are many “ancillary attributes” that help describe the condition will be collected, but will not be used for delineation purposes (see ITEMS 2407-2423 and ITEMS 201R-219R).

2.4.2 DELINEATING WITHIN FOREST CONDITION CLASSES BASED ON NEW PAST CONDITION STATUS

Accessible forest land is also subdivided into several categories based on the history of the CONDITION STATUS. These divisions break out reverted, landcleared, and lost conditions from all other identified conditions on the plot, regardless of the present similarities between them. These conditions are EXEMPT from the within forest size requirements of 120 ft wide and 1.0 ac and are described below in General Instructions #5-7.

2.4.3 GENERAL INSTRUCTIONS FOR DELINEATING CONDITION CLASSES WITHIN ACCESSIBLE FOREST LANDS:

1. Distinct boundary within a subplot, or microplot: Separate condition classes ARE recognized if, within a subplot, two (or more) distinctly different condition classes are present and delineated by a distinct, abrupt boundary. The boundary is referenced; see Section 3.0.
2. Indistinct boundary within a subplot: Separate condition classes are NOT recognized if the prospective condition classes abut along an indistinct transition zone, rather than on an abrupt, obvious boundary. Only one condition is recognized, and the subplot is classified entirely as the condition it most resembles.

Example: The 4 subplots all sample only accessible forest land. Subplots 1, 3, and 4 sample what is clearly a stand of large diameter trees. Subplot 2 falls in the middle of a stand size transition zone. In the zone, the large diameter stand phases into a sapling stand. Subplot 2 must not be divided into two condition classes on the basis of stand size. Instead, it is treated entirely as part of the large diameter condition class or is assigned entirely to a new condition class that is classified as a seedling-sapling stand. The latter occurs only if the crew thinks the entire subplot is more like a stand of seedling-saplings than a stand of large diameter trees; then the boundary between the large and small diameter stands is assumed to occur between and not on the subplots.

3. A boundary or transition zone between fixed radii plots that sample distinctly different condition classes: Separate condition classes ARE recognized and recorded when a valid attribute obviously differs between two fixed radius plots, but a distinct boundary or indistinct transition zone exists outside the sampled (fixed-radius) area of the subplots. In such cases, a boundary, if present, is not referenced.

Example: The northernmost subplot (2) samples a pure hardwood forest type. The other three subplots, 1, 3, and 4, fall clearly in a

pure pine stand. Between subplot 1 and 2 is a transition zone; the number of hardwood trees present goes from none to what clearly represents at least 75-percent of the stocking. Two condition classes are sampled: hardwood sampled on subplot 2, and pine sampled on the other subplots.

4. Riparian forest area: A riparian forest area is defined as a forest area between 30 and 120 ft wide, and 1.0 ac or more in size, cumulative, but not necessarily present on both sides of and adjacent to a naturally occurring or artificially created body of water or watercourse with continuous or intermittent flow. Riparian forest areas may be associated with but not limited to streams, rivers, lakes, sloughs, seeps, springs, marsh, beaver ponds, sink holes, cypress domes and ponds, man-made ditches and canals. A riparian forest area must be associated “within forest” and contain at least one distinct and obvious change in a condition class delineation attribute from its adjacent accessible forest land condition class.

Note: When the width of forest adjacent to a stream is between 120.0 ft and 150.0 ft and the width of the riparian forest is at least 30.0 ft wide, the rules for identifying the non-riparian forest (at least 30.0 ft but less than 120.0 ft) need to be modified. The non-riparian forest can be between 30.0 ft and 120.0 ft and mapped as a separate condition as long as it meets the criteria for delineating a separate condition class, otherwise it will be an inclusion in the riparian forest condition class.

5. Reverted forest area: Forest areas that have reverted since the last inventory are separated from conditions that were accessible forest land at the previous inventory.
6. Procedural changes: Forest areas that must be reclassified due to procedural changes are separated from other conditions on the plot.
7. Lost data: Forest areas that cannot be remeasured due to lost data (i.e., subplot could not be relocated) are delineated from other conditions. This distinction is only made on SAMPLE KIND = 2 plots. Record PRESENT CONDITION STATUS = 9.

2.5 DETERMINING CONDITION CLASSES WITHIN NONFOREST LAND

All nonforest land conditions are recorded as one condition, with the following exceptions:

1. Land cleared areas: Nonforest areas that have been landcleared since the last inventory are separated from other nonforest conditions that were nonforest at the previous survey.
2. Procedural changes: Nonforest areas that are reclassified from forest land to nonforest land due to procedural changes are separated from other conditions on the plot.

These exceptions are recorded as separate nonforest conditions in order to capture the amount of real change between surveys as well as to quantify change due to variance in field procedures.

2.6 RECORDING CONDITION LEVEL CHANGES BETWEEN INVENTORIES

2.6.1 NEW PAST LAND USE

Recorded on all Sample Kinds. A new past attribute is recorded that identifies how the LAND USE has changed since the last survey. When determining the value of the “new” past land use, record a code that best describes what the past land use would have been if all CURRENT procedures had been in use at the time of the previous inventory of the four subplots. Always use the current codes; never use the old codes. Use all the information at your disposal to determine the “new” past land use (i.e., past photos, crew notes, diagrams, and even the previous cruiser call). But keep in mind the previous cruiser was using different procedures. To record a different past code than the previous cruiser, it **MUST BE CLEARLY OBVIOUS** that the attribute would have been different using current procedures, or that the previous cruiser was in error.

2.6.1 OLD LAND USE

Recorded on Sample Kind 2 and 9 plots only. Record the code that matches the land use that the previous cruiser recorded for the condition. Use the current codes; do not use the old codes. For example, the previous code for a road was 67. Record land use code 32.

2.6.3 SIMILAR IDENTIFIED CONDITION CLASS

Recorded on reverted and landcleared conditions on SK 2 remeasurement plots only. Since NEW PAST CONDITION STATUS can delineate a condition in addition to the six condition defining attributes, two conditions may appear to be identical at the current inventory, yet must remain separate conditions because they have a different past condition status. This is done to capture the amount of change (e.g., reversions and landclearings) between surveys.

NOTE: Conditions that are less than 120.0 ft wide or less than 1.0 ac in size should be broken out to delineate reverted areas, areas reclassified due to procedural changes, or to identify conditions that cannot be remeasured due to lost data (see Section 2.4.2).

If it were not for any of the above, many reverted and landcleared conditions would actually be a part of another condition on the plot. SIMILAR IDENTIFIED CONDITION is an attribute that links these types of conditions together. On reverted conditions it is simply a shortcut so the cruiser does not have to record the forest descriptor data twice. The reverted forest condition either exactly matches another forest condition on the plot or it otherwise would not stand alone if it were not a reverted condition. Landcleared conditions require SIMILAR IDENTIFIED CONDITION to link it to any other nonforest conditions on the plot. When the plot is remeasured in the future, the condition data will be linked so that the next crew only sees one condition record. See examples on next page.

Example 1:

At the last survey, the plot had two conditions. Condition 1 was accessible forest land and Condition 2 was idle farm land. Since then, the forest land has been clearcut, and both it and the nonforest land were planted in loblolly pine. At the present survey, the plot still has two conditions – a forest to forest condition (labeled Condition 1), and a reverted condition (labeled Condition 2). However, since both conditions do not differ in any of the six condition defining attributes, they would be one condition if one or them were not reverted. In this example, SIMILAR IDENTIFIED CONDITION is coded ‘1’ for the reverted condition. The remaining forest descriptor attributes are not required for the reverted condition because the crew has indicated that the forest condition variables are the same as condition 1. At the next survey, only the condition record for condition 1 will be sent to the field.

CONDITION LEVEL DATA																				
ALL CONDITIONS								FOREST CONDITIONS ONLY (and R201 = 0)												
CONDITION CLASS NUMBER	CONDITION STATUS							RES RVD	OWNERSHIP					FOREST TYPE		SIZE	REGENERATION STATUS			DEN SITY
	PRESENT LAND USE	PRESENT CONDITION STATUS	NEW PAST LAND USE	NEW PAST CONDITION STATUS	OLD LAND USE (SK 2 & 9)	NON-FOREST YEAR (SK 2 & 9)	SIMILAR IDENTIFIED CONDITION	RESERVED STATUS	OWNER CLASS	OWNER GROUP	PRIVATE OWNER INDUSTRIAL STATUS	TRACT SIZE (TOTAL ACRES)	TRACT SIZE (PERCENT FOREST)	PRESENT FOREST TYPE	NEW PAST FOREST TYPE	STAND SIZE CLASS	PRESENT REGENERATION STATUS	NEW PAST REGENERATION STATUS	ARTIFICIAL REGENERATION SPECIES	TREE DENSITY
2201	2425	2202	2424	R202	R219	2426	R201	2401	2407	2402	2408	R205	R206	2403	R207	2404	2405	R209	2409	2406
X	XX	X	XX	X	XX	XXXX	X	X	XX	XX	X	XXXXX	XXX	XXX	XXX	X	X	X	XXX	X
1	01	1	01	1	01	--	--	0	45	40	0	00200	094	161	161	1	1	0	131	0
2	01	1	13	2	13	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--

Example 2:

At the last survey, the plot had two conditions. Condition 1 was pasture and Condition 2 was a medium size pine plantation. Since then, the pasture has been abandoned. The field crew determines that a 50-foot strip along the edge of the pine plantation has reverted (see Section 2.3.1). The reverted strip is delineated as a new separate condition (labeled Condition 1 by the current crew) from the pine plantation (labeled Condition 2) and from the pasture (labeled Condition 3). This will provide an estimate on how much land area is reverted. However, since the reverted strip is less than 120.0 ft wide, it conflicts with the size requirement for a forest condition. Since it normally would not stand on its own as a separate condition, SIMILAR IDENTIFIED CONDITION for the reverted strip is recorded ‘2’ to link it with the pine plantation condition.

CONDITION LEVEL DATA																				
ALL CONDITIONS								FOREST CONDITIONS ONLY (and R201 = 0)												
CONDITION CLASS NUMBER	CONDITION STATUS							RES RVD	OWNERSHIP					FOREST TYPE		SIZE	REGENERATION STATUS			DENSITY
	PRESENT LAND USE	PRESENT CONDITION STATUS	NEW PAST LAND USE	NEW PAST CONDITION STATUS	OLD LAND USE (SK2 & 9)	NON-FOREST YEAR (SK2 & 9)	SIMILAR IDENTIFIED CONDITION	RESERVED STATUS	OWNER CLASS	OWNER GROUP	PRIVATE OWNER INDUSTRIAL STATUS	TRACT SIZE (TOTAL ACRES)	TRACT SIZE (PERCENT FOREST)	PRESENT FOREST TYPE	NEW PAST FOREST TYPE	STAND SIZE CLASS	PRESENT REGENERATION STATUS	NEW PAST REGENERATION STATUS	ARTIFICIAL REGENERATION SPECIES	TREE DENSITY
2201	2425	2202	2424	R202	R219	2426	R201	2401	2407	2402	2408	R205	R206	2403	R207	2404	2405	R209	2409	2406
X	XX	X	XX	X	XX	XXXX	X	X	XX	XX	X	XXXXX	XXX	XXX	XXX	X	X	X	XXX	X
1	01	1	12	2	12	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--
2	01	1	01	1	01	--	--	0	45	40	0	00525	080	161	161	2	1	1	131	0
3	12	2	12	2	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

2.7 CONDITION LEVEL ATTRIBUTE CLASSIFICATION

ITEM 2201 CONDITION CLASS NUMBER (CORE 2.2.1)

On a plot, assign and record a unique identifying number for each condition class. At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is designated condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

When collected: All condition classes
Field width: 1 digit
Values: 1 to 9

ITEM 2425 PRESENT LAND USE (CORE 2.4.25)

Record the classification that indicates the land use of the condition.

This code may not necessarily mirror the condition status code. For example, the PRESENT CONDITION STATUS of a forested area may be coded denied access (ITEM 2202, code 5). However, if the area is easily visible, the correct land use can be identified without physically occupying the denied access area. Use code 03 when the plot samples forest land but is not accessible for data collection. Use codes 10, 30, 40 and 90 only for land not better described by one of the more detailed codes within each category. See glossary for complete definitions.

When collected: All condition classes
Field width: 2 digits
Values:

01	Accessible timber land	30	Other developed
02	Accessible other forest land	31	Cultural (business, residential, etc.)
03	Denied access forest land	32	Rights-of-way (road, railroad, utility line)
04	Hazardous forest land	33	Recreation area (golf course, campground, parks, etc.)
08	Lost subplot (timber land)	34	Mining
09	Lost subplot (other forest)		
		40	Other non-forest (barren land, rock)
10	Other agricultural land	41	Non-census water
11	Cropland	42	Marsh
12	Pasture (improved)	43	Beaches
13	Idle farmland		
14	Orchard	91	Census water
15	Christmas tree plantation	92	Denied access – land use not classified
16	Maintained wildlife openings	93	Hazardous – land use not classified
		94	Area not in the sample (Mexico)
20	Rangeland		

ITEM 2202 PRESENT CONDITION STATUS (CORE 2.2.2)

Record the code that describes the status of the condition. Record for all condition classes sampled on a plot. The instructions in Section 2.2 and 2.3 apply when delineating condition classes that differ by CONDITION STATUS.

When collected: All condition classes

Field width: 1 digit

Values:

- 1 Accessible forest land
- 2 Nonforest land
- 3 Noncensus water
- 4 Census water
- 5 Denied access area
- 6 Area too hazardous to visit
- 7 Area that is not in the sample, e.g., in Canada or Mexico
- 9 Lost subplot (accessible forest land only)

ITEM 2424 NEW PAST LAND USE (CORE 2.4.24)

Record the code that best describes the past land use of the condition **if the current procedures had been used at the previous inventory**. Use previous cruiser sketch maps, old photos, and all relevant information when determining the past condition status. Only differ with the previous land use if it is OBVIOUS that it would have been different if the current procedures had been used, or that the previous cruiser was in error. Record a description in the PLOT LEVEL NOTES when the past land use is wrong or is different due to procedural changes.

When collected: All condition classes

Field width: 2 digits

Values: Use same codes for PRESENT LAND USE listed above

ITEM R202 NEW PAST CONDITION STATUS

Record the code that best describes the past status of the condition **if the current procedures had been used at the previous inventory**. Use previous cruiser sketch maps, old photos, and all relevant information when determining the past condition status. Only differ with the previous condition status if it is OBVIOUS that it would have been different if the current procedures had been used, or that the previous cruiser was in error.

When collected: All condition classes

Field width: 1 digit

Values: 1-7

ITEM R219 OLD LAND USE

Record the code that matches the land use that the previous cruiser recorded for the condition. Use the current codes; do not use the old codes. For example, the previous code for a road was 67. Record land use code 32.

When collected: SAMPLE KIND 2 all conditions;
SAMPLE KIND 9 condition 1 only

Field width: 2 digits

Values: Use same codes for PRESENT LAND USE listed above

ITEM 2426 NON-FOREST YEAR (CORE 2.4.26)

Record the estimated year that a previously accessible forest land condition class was converted to a non-forest condition. This variable will be used to apportion tree growth on any trees that were included in the condition when it was forest land. Record the year in which the conversion took place. In most cases, all trees in a given condition class will be assigned the same non-forest year. If it can be determined that a tree died before the land was converted to a non-forest use, mortality year is required at the tree level. If a previously accessible forest land condition is now nonforest due to procedural changes, then code the year of the previous survey.

When collected: SAMPLE KIND = 2, PAST CONDITION STATUS = 1, and PRESENT CONDITION STATUS not equal to 1;
SAMPLE KIND 9 condition 1 only, PAST CONDITION STATUS = 1, and PRESENT CONDITION STATUS not equal to 1

Field width: 4 digits

Values: 19xx or 200x, cannot precede year of previous inventory

ITEM R201 SIMILAR IDENTIFIED CONDITION CLASS NUMBER

Record only on reverted and landcleared condition classes on SAMPLE KIND 2 plots. If the condition is not at least 120.0 ft wide or at least 1.0 ac in size, list the condition number that it most likely would be combined with to meet the size requirements if it were not a landclearing or reversion. Follow instructions in Section 2.6.3

If any of the six condition defining variables are different from the other conditions on the plot, AND the condition meets size requirements so that it would remain a separate condition regardless, then code 0.

This is required simply so that the cruiser does not have to repeat the same forest descriptor variables for a reverted area that is broken out but is not large enough to stand on its own otherwise, or is exactly like another forest condition on the plot. It also will be used to link the data so next survey there is only one condition record sent to the field instead of two.

When collected: SAMPLE KIND 2, reverted and landcleared conditions only

Field width: 1 digit

Values: 0 to 9

ITEM 2401 RESERVED STATUS (CORE 2.4.1)

Record the code that identifies the reserved designation for the condition. Reserved land is withdrawn by law(s) prohibiting the management of land for the production of wood products (not merely controlling or prohibiting wood harvesting methods). Such authority is vested in a public agency or department, and supersedes rights of ownership. The prohibition against management for wood products cannot be changed through decision of the land manager (management agency) or through a change in land management personnel, but rather is permanent in nature. The phrase "withdrawn by law" includes as reserved land, parcels of private land with deeds that specifically prohibit the management of the tract for the production of wood products. Examples of reserved land include: National Parks, Wilderness Areas, Wild and Scenic Rivers, Military Parks, etc.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

- 0 Not reserved
- 1 Reserved

ITEM 2407 OWNER CLASS (CORE 2.4.7)

Record the OWNER CLASS code that best corresponds to the ownership (or the managing Agency for public lands) of the land in the condition class. If multiple owner classes within a group occur on a single condition class, record the owner class closest to the plot center. Conditions will **NOT** be delineated based on changes in OWNER CLASS. Conditions will be delineated based on changes in OWNER GROUP that can be clearly identified on the ground when visiting the plot.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 2 digits

Values:

Owner Classes within US Forest Service Land (Owner Group 10)

- 11 National Forest
- 12 National Grassland
- 13 Other Forest Service

Owner Classes within Other Federal Land (Owner Group 20)

- 21 National Park Service
- 22 Bureau of Land Management
- 23 Fish and Wildlife Service
- 24 Departments of Defense/Energy
- 25 Other Federal

Owner Classes within State and Local Government Land (Owner Group 30)

- 31 State
- 32 Local (County, Municipality, etc.)
- 33 Other Non Federal Public

Owner Classes within Private Land (Owner Group 40)

- 41 Corporate
- 42 Non Governmental Conservation / Natural Resources Organization
Examples: Nature Conservancy, National Trust for Private Lands, Pacific Forest Trust, Boy Scouts of America, etc.
- 43 Unincorporated Partnerships / Associations / Clubs
Examples: Hunting Clubs that **own, not lease** property, recreation associations, 4H, etc.
- 44 Native American (Indian) within reservation boundaries
- 45 Individual

ITEM 2402 OWNER GROUP (CORE 2.4.2)

Record the OWNER GROUP code identifying the ownership (or the managing Agency for public lands) of the land in the condition class. Conditions will be delineated based on changes in OWNER GROUP only; separate conditions due to changes in OWNER GROUP are recognized only where the differences can be clearly identified on the ground when visiting the plot.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and
PRESENT CONDITION STATUS = 1

Field width: 2 digits

Values:

- 10 US Forest Service
- 20 Other Federal
- 30 State and Local Government
- 40 Private

ITEM 2408 PRIVATE OWNER INDUSTRIAL STATUS (CORE 2.4.8)

Record the code identifying the status of the owner with regard to being considered industrial as determined by whether or not they own and operate a primary wood processing plant. A primary wood processing plant is any commercial operation which originates the primary processing of wood on a regular and continuing basis. Examples include: pulp or paper mill, sawmill, panel board mill, post or pole mill, etc. Cabinet shops, "mom & pop" home-operated businesses, etc., should not be considered as industrial plants. If any doubt exists with the determination by the field crew about the owner's industrial status due to name, commercial plant size, type plant, etc., choose code 0 below.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0,
PRESENT CONDITION STATUS = 1, and OWNER GROUP = 40

Field width: 1 digit

Values:

- 0 Land **is not** owned by industrial owner with a wood processing plant
- 1 Land **is** owned by industrial owner with wood processing plant

ITEM R205 TRACT SIZE (TOTAL ACRES)

Tract size is recorded when the OWNER GROUP is 40 **and** the PRIVATE OWNER INDUSTRIAL STATUS is 0. Include both forest and non-forest acres of the parcel. Do not include separate parcels that the landowner may own elsewhere. If more than one private landowner owns a sample location, record the tract size information for the first forest condition for subsequent forest conditions classified as a private, non-industrial landowner, even though they may be a different owner. See Ownership Procedures in Section 0.3.

Tract size often affects whether a forest stand is likely to be managed and the likelihood of its becoming a source of timber supplies. Very small parcels of land in primarily urban settings are often perceived to be unavailable for timber harvest and many users of FIA data have requested that these areas be identified to eliminate them from the resource base when assessing timber availability. Tract size also provides the ability to track timber removals for parcels of different sizes over time.

When collected: SIMILAR IDENTIFIED CONDITION CLASS NUMBER = 0, PRESENT CONDITION STATUS = 1, OWNER GROUP = 40, and PRIVATE OWNER INDUSTRIAL STATUS = 0

Field width: 5 digits
Values: 00001-99999

ITEM R206 TRACT SIZE (PERCENT FOREST)

Record the percentage of the tract that is forested. See Ownership Procedures in Section 0.3.

When collected: TRACT SIZE (TOTAL ACRES) is collected
Field width: 3 digits
Values: 001-100

ITEM 2403 PRESENT FOREST TYPE (CORE 2.4.3)

Record the code corresponding to the forest type (from Appendix 2) that best describes the species with the plurality of stocking for all live trees in the condition class that are not overtopped.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 3 digits
Values:

White-Red-Jack Pine Group

- 103 Eastern white pine
- 104 White pine/hemlock
- 105 Eastern hemlock

Spruce-Fir Group

- 121 Balsam fir
- 123 Red spruce
- 124 Red spruce/balsam fir

Longleaf-Slash Pine Group

- 141 Longleaf pine
- 142 Slash pine

Loblolly-Shortleaf Pine Group

- 161 Loblolly pine
- 162 Shortleaf pine
- 163 Virginia pine
- 164 Sand pine
- 165 Table-mountain pine
- 166 Pond pine
- 167 Pitch pine
- 168 Spruce pine

Pinyon-Juniper Group

- 181 Eastern redcedar
- 182 Rocky Mountain juniper
- 184 Juniper woodland
- 185 Pinyon juniper

Ponderosa Pine Group

- 221 Ponderosa pine

Other Western Softwoods Group

- 366 Limber pine
- 368 Miscellaneous western softwoods

Exotic Softwoods Group

- 381 Scotch pine
- 382 Australian pine
- 383 Other exotic softwoods
- 384 Norway spruce

Oak-Pine Group

- 401 E. white pine/n. red oak/ white ash
- 402 Eastern redcedar/ hardwood
- 403 Longleaf pine/oak
- 404 Shortleaf pine/oak
- 405 Virginia pine/southern red oak
- 406 Loblolly pine/hardwood
- 407 Slash pine/hardwood
- 409 Other pine/hardwood

Oak-Hickory Group

- 501 Post oak/blackjack oak
- 502 Chestnut oak
- 503 White oak/red oak/hickory
- 504 White oak
- 505 Northern red oak
- 506 Yellow-poplar/white oak/red oak
- 507 Sassafras/persimmon
- 508 Sweetgum/yellow-poplar
- 509 Bur oak
- 510 Scarlet oak
- 511 Yellow-poplar
- 512 Black walnut
- 513 Black locust
- 514 Southern scrub oak
- 515 Chestnut oak/black oak/scarlet oak
- 519 Red maple/oak
- 520 Mixed upland hardwoods

Oak-Gum-Cypress Group

- 601 Swamp chestnut oak/cherrybark oak
- 602 Sweetgum/nuttall/willow oak
- 605 Overcup oak/water hickory
- 606 Atlantic white-cedar
- 607 Baldcypress/water tupelo
- 608 Sweetbay/swamp tupelo/red maple

Elm-Ash-Cottonwood Group

- 701 Black ash/American elm/red maple
- 702 River birch/sycamore
- 703 Cottonwood
- 704 Willow
- 705 Sycamore/pecan/American elm
- 706 Sugarberry or hackberry/elm/green ash
- 707 Silver maple/American elm
- 708 Red maple (lowland)
- 709 Cottonwood/willow

Maple-Beech-Birch Group

- 801 Sugar maple/beech/yellow birch
- 802 Black cherry
- 803 Cherry/ash/yellow-poplar
- 805 Hard maple/basswood
- 807 Elm/ash/locust
- 809 Red maple (upland)

Western Oak Group

- 925 Deciduous oak woodland

Other Western Hardwoods Group

- 952 Mesquite woodland
- 955 Miscellaneous western hardwood woodlands

Tropical Hardwoods Group

- 981 Sabal palm
- 982 Mangrove
- 989 Other tropical

Exotic Hardwoods Group

- 991 Paulownia
- 992 Melaleuca
- 993 Eucalyptus
- 995 Other exotic hardwoods

999 Non-stocked

ITEM R207 NEW PAST FOREST TYPE

Record the code that best describes the past forest type of the condition **if the current procedures had been used at the previous inventory**. Use previous cruiser sketch maps, old photos, and all relevant information when determining the past forest type status. Only differ with the previous forest type if it is OBVIOUS that it would have been different if the current procedures had been used, or that the previous cruiser was in error.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and
PRESENT CONDITION STATUS = 1

Field width: 3 digits

Values: Use same codes for PRESENT FOREST TYPE

ITEM 2404 STAND SIZE CLASS (CORE 2.4.4)

Record the code that best describes the predominant size class of all live trees in the condition class that are not overtopped.

When collected: If **SIMILAR CONDITION CLASS = 0** and **PRESENT CONDITION STATUS = 1**

Field width: 1 digit

Values:

- 0 Nonstocked:
Meeting the definition of accessible forest land, and one of the following applies:
 - (a)less than 10 percent stocked by trees of any size, and not classified as cover trees, or
 - (b)for forest types where stocking standards are not available, less than 5 percent **crown cover** of trees of any size.
- 1 Up to 4.9 in (seedlings / saplings)
At least 10 percent stocking in trees of any size; and at least 2/3 of the crown cover is in trees less than 5.0 in DBH.
- 2 5.0 – 8.9 in (softwoods) / 5.0 – 10.9 in (hardwoods)
At least 10 percent stocking in trees of any size; and at least 1/3 of the crown cover is in trees greater than 5.0 in DBH **and** the plurality of the crown cover is in softwoods between 5.0 – 8.9 in diameter and/or hardwoods between 5.0 – 10.9 in DBH.
- 3 9.0 – 19.9 in (softwoods) / 11.0 – 19.9 in (hardwoods)
At least 10 percent stocking in trees of any size; and at least 1/3 of the crown cover is in trees greater than 5.0 in DBH **and** the plurality of the crown cover is in softwoods between 9.0 – 19.9 in diameter and/or hardwoods between 11.0 – 19.9 in DBH.
- 4 20.0 – 39.9 in
At least 10 percent stocking in trees of any size; and at least 1/3 of the crown cover is in trees greater than 5.0 in DBH **and** the plurality of the crown cover is in trees between 20.0 – 39.9 in DBH.
- 5 40.0 + in
At least 10 percent stocking in trees of any size; and at least 1/3 of the crown cover is in trees greater than 5.0 in DBH **and** the plurality of the crown cover is in trees \geq 40.0 in DBH.
- 6 Cover trees (non-tallied):
Less than 10 percent stocking by trees of any size, and greater than 5 percent **crown cover** of species that comprise cover trees.

Within the sampled area on microplot, subplot, or annular plot, recognize only very obvious contrasting stands of different mean diameter with an abrupt boundary. Example: an obvious abrupt boundary exists within the sampled (fixed-radius) area of a subplot and demarcates a large diameter stand from a small diameter stand. Use tree stocking of all live trees that are not overtopped to differentiate between stand-size classes.

Use crown cover as the surrogate for stocking to determine STAND SIZE CLASS. View the plot from the top down and examine crown cover. The stand must have at least 5% of the crown cover in STAND SIZE CLASSES of 1,2,3,4, and 5 or any combination of these STAND SIZE CLASSES; otherwise the STAND SIZE CLASS is either 0 or 6 depending on the characteristics of the stand. If at least 1/3 of crown cover is made up of STAND SIZE CLASSES = 2, 3, 4, and 5 (combined), the accessible forested condition will be classified in one of these STAND SIZE CLASSES based on which of these STAND SIZE CLASSES has the most crown cover. If less than 1/3 of the crown cover is made up of STAND SIZE CLASSES = 2, 3, 4, and 5 (combined), classify the accessible forested condition as a STAND SIZE CLASS = 1, if adequate cover is present.

If no other condition class defining variables are different between accessible forest conditions on a subplot, then delineate on differences in STAND SIZE CLASS only for the following combinations:

Between Nonstocked (STAND SIZE CLASS = 0) or cover trees (STAND SIZE CLASS = 6) and any stocked forest land (1, 2, 3, 4, or 5);
 Between STAND SIZE CLASS = 1 and STAND SIZE CLASS = 3, 4, and 5;
 Between STAND SIZE CLASS = 2 and STAND SIZE CLASS = 4 and 5; or
 Between STAND SIZE CLASS = 3 and STAND SIZE CLASS = 5.

Note: Differing stand size classes can be used to describe separate condition classes, while at the same time not be used to delineate separate condition classes. Example: Two adjacent forested stands of the same forest type, one with a STAND SIZE CLASS = 1 and the other with a STAND SIZE CLASS = 2 could be delineated on a subplot as a separated CONDITION CLASS if one of the other condition class delineation variables differs (based on the rules), i.e. OWNER GROUP differs between the two condition classes. In addition, the STAND SIZE CLASS variables for the two condition classes would be recorded and treated as an ANCILLARY variable.

ITEM 2405 PRESENT REGENERATION STATUS (CORE 2.4.5)

Record the code that best describes the degree of evidence of artificial regeneration, which occurred in the condition.

When collected: If SIMILAR CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

- | | | |
|---|------------|---|
| 0 | Natural | Present stand shows no clear evidence of artificial regeneration. Includes unplanted, recently cut lands. |
| 1 | Artificial | Present stand shows clear evidence of artificial regeneration. |

For a forest land condition to be delineated and/or classified as artificially regenerated, the condition must show distinct evidence of planting or seeding. If it is difficult to determine whether or not a stand has been planted or seeded, then use code 0. If no distinct boundary exists within the sampled (fixed-radius) area on any subplot, then do not recognize separate conditions.

Note: Plot records or verbal evidence from landowner is acceptable for determining regeneration status.

ITEM R209 NEW PAST REGENERATION STATUS

Record the code that best describes the degree of evidence of artificial regeneration of the condition **if the current procedures had been used at the previous inventory**. Use previous cruiser sketch maps, old photos, and all relevant information when determining the past regeneration status. Only differ with the previous condition status if it is OBVIOUS that it would have been different if the current procedures had been used, or that the previous cruiser was in error.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values: Use the same codes as PRESENT REGENERATION STATUS

ITEM 2409 ARTIFICIAL REGENERATION SPECIES (CORE 2.4.9)

Record the species code of the predominant tree species for which evidence exists of artificial regeneration in the stand. This attribute is ancillary; that is, contrasting condition classes are never delineated based on variation in this attribute.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0, PRESENT CONDITION STATUS = 1, and PRESENT REGENERATION STATUS = 1

Field width: 3 digits

Values: See Appendix 3

ITEM 2406 TREE DENSITY (CORE 2.4.6)

Record a code to indicate the relative tree density classification. Base the classification on the number of stems/unit area, basal area, tree cover, or stocking of all live trees in the condition which are not overtopped, compared to any previously defined condition class TREE DENSITY.

The instructions in section 2.1 and 2.3 apply when delineating, within accessible forest land, contrasting conditions based on differences in TREE DENSITY.

Codes 2 and higher are used ONLY when all other attributes used to delineate separate condition classes are homogenous, i.e. when a change in density is the ONLY difference in what would otherwise be treated as one forest condition. Otherwise, code 1 for all condition classes. Codes 2 and higher are usually, but not always, used to demarcate areas that differ from an adjacent area due to forest disturbance, e.g., a partial harvest or heavy but not total tree mortality due to a ground fire. Delineation by density should only be done when the less-dense condition is 50% or less as dense as the denser condition.

Do not distinguish between low stocked stands or stands of sparse and patchy forest.

When collected: If SIMILAR IDENTIFIED CONDITION = 0 and PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

- 1 Initial density class
- 2 Density class 2 - density different than 1
- 3 Density class 3 - density different than 1 and 2

In order to qualify as a separate condition based on density, there MUST be a distinct, easily observed change in the density of an area's tree cover or basal area.

Examples of valid contrasting conditions defined by differences in tree density are forest land conditions with the same type, origin, stand size, ownership, and reserved status, but:

- the eastern half of an otherwise homogeneous, 20 ac stand has many trees killed by a bark beetle outbreak,
- or
- one portion of a stand is partially cut over (with 40 sq. ft basal area per ac) while the other portion is undisturbed (with 100 sq. ft basal area per ac).

ITEM 2410 STAND AGE (CORE 2.4.10)

Record the average total age, to the nearest year, of the trees (plurality of all live trees not overtopped) in the predominant STAND SIZE CLASS of the condition. Record 000 for non-stocked stands.

An estimate of STAND AGE is required for every forest land condition class defined on a plot. Stand age is usually highly correlated with stand size and should reflect the average age of all trees that are not overtopped. Unlike the procedure for site tree age, estimates of stand age should estimate the time of tree establishment (e.g., not age at the point of diameter measurement). Note: For planted stands, estimate age based on the year the stand was planted (e.g., do not add in the age of the planting stock).

To estimate STAND AGE, select two or three dominant or codominant trees from the overstory. If the overstory covers a wide range of tree sizes and species, try to select the trees accordingly, but it is not necessary to core additional trees in such stands. The variance associated with mean stand age increases with stand heterogeneity, and additional cores are not likely to improve the estimate. Core each tree at the point of diameter measurement and count the rings between the outside edge and the core to the pith. Add in the number of years that passed from germination until the tree reached the point of core extraction to determine the total age of the tree. Add : longleaf — 7 years; other pines— 3 years; hardwoods— 2 years. Assign a weight to each core by visually estimating the percentage of total overstory trees it represents. Make sure the weights from all cores add up to 1.0, compute the weighted average age, and record. For example, if three trees aged 34, 62, and 59 years represent 25 percent, 60 percent, and 15 percent of the overstory, respectively, the weighted stand age should be:

$$(34 \times 0.25) + (62 \times 0.60) + (59 \times 0.15) = 55 \text{ years.}$$

In some cases, it may be possible to avoid coring trees to determine age. If a stand has not been seriously disturbed since the previous survey, simply add the number of years since the previous inventory to the previous STAND AGE. In other situations, cores collected from site trees can be used to estimate STAND AGE.

If a condition class is nonstocked, assign a STAND AGE of 000.

If all of the trees in a condition class are not suitable to be bored for age (e.g. rotten cores, unable to read growth rings), then record 998. This code should be used in these cases only.

When collected: If SIMILAR IDENTIFIED CONDITION = 0 and PRESENT CONDITION STATUS = 1

Field width: 3 digits

Values: 000 to 199, 998

ITEM R211 STAND STRUCTURE

Record the code that best describes the predominant canopy structure for the condition. When determining canopy structure, only consider the vertical position of the dominant and codominant trees in the stand. Do not consider trees that are intermediate or overtopped crown class. As a rule of thumb, a different story should comprise 25% of the stand.

When collected: If SIMILAR IDENTIFIED CONDITION = 0 and PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

- 1 Single-storied - Most of the dominant/codominant tree crowns form a single canopy (i.e., most of the trees are approximately the same height).
- 2 Two-storied - The dominant/codominant tree crowns form two distinct canopy layers or stories.
- 3 Multi-storied - More than two recognizable levels characterize the crown canopy. Dominant/codominant trees of many sizes (diameters and heights) for a multilevel canopy.
- 4 Non-stocked - The condition is less than 10% stocked.

ITEM R220 DISTURBANCES?

ITEM R221 TREATMENTS?

Record the code indicating the presence or absence of disturbances and treatments on the condition.

When collected: On data recorder only; If SIMILAR IDENTIFIED CONDITION = 0 and PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

- 0 No
- 1 Yes

ITEM 2411, 2413, 2415 DISTURBANCE 1, 2, 3 (CORE 2.4.11, 2.4.13, 2.4.15)

Record the code that meets the threshold of the following disturbances. Disturbance can connote positive or negative effects. The area affected by any natural or human-caused disturbance must be at least 1.0 ac in size. Record up to three different disturbances per condition class from most important to least important as best as can be determined. This attribute is ancillary; that is, contrasting conditions are never delineated based on variation in this attribute.

For initial forest plot establishment (initial grid activation or newly forested plots), the disturbance must be within the last 5 years. For remeasured plots recognize only those disturbances that have occurred since the previous inventory.

The disturbance codes below require "significant threshold" damage, which implies mortality and/or damage to 25 percent of individual trees in the condition class.

When collected: If SIMILAR IDENTIFIED CONDITION = 0 and PRESENT CONDITION STATUS = 1

Field width: 2 digits

Values:

- 00 None - no observable disturbance
- 10 Insects
- 20 Disease
- 30 Fire (from crown and ground fire, either prescribed or natural)
 - 31 ground fire
 - 32 crown fire
- 40 Animal other than the following:
 - 41 beaver (includes flooding caused by beaver)
 - 42 porcupine
 - 43 deer/ungulate
 - 45 domestic animal/livestock (includes grazing)
- 50 Weather other than the following:
 - 51 ice
 - 52 wind (includes hurricane, tornado)
 - 53 flooding (weather-induced)
 - 54 drought
- 60 Vegetation (suppression, competition, vines)
- 70 Unknown / not sure / other (include in NOTES)
- 80 Human - Any significant threshold human-caused damage not described in the DISTURBANCE codes listed above or the TREATMENT codes listed below.

ITEM 2412, 2414, 2416 DISTURBANCE YEAR 1, 2, 3 (CORE 2.4.12, 2.4.14, 2.4.16)

Record the year in which DISTURBANCE 1 occurred. If the disturbance occurs continuously over a period of time, record 9999.

When collected: If PRESENT CONDITION STATUS = 1 and SIMILAR IDENTIFIED CONDITION CLASS NUMBER = 0

Field width: 4 digits

Values: Since the previous plot visit, or the past 5 years for plots visited for the first time.

ITEM 2417, 2419, 2421 TREATMENT 1, 2, 3 (CORE 2.4.17, 2.4.19, 2.4.21)

Record the code corresponding to the presence of one of the following treatments since the last inventory cycle or within the past 5 years. The area affected by any treatment must be at least 1.0 ac in size. Record up to three different treatments per condition class from most important to least important as best as can be determined. This attribute is ancillary; that is, contrasting conditions are never delineated based on variation in this attribute.

For initial forest plot establishment (initial grid activation or newly forested plots), the treatment must be within the last 5 years. For remeasured plots recognize only those treatments that have occurred since the previous inventory.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 2 digits

Values:

- | | |
|----|--|
| 00 | <u>None</u> - No observable treatment that meets the 25% threshold. |
| 10 | <u>Other Cutting</u> - Miscellaneous cutting that has little or no impact on present or future stand conditions. Includes cutting for firewood, fence posts, and salvage cuts typified by sparse cutting. |
| 11 | <u>Clearcut harvest</u> – The removal of the majority of the merchantable trees in a stand; residual stand stocking is under 50 percent. |
| 12 | <u>Partial harvest</u> – Removal primarily consisting of highest quality trees. Residual consists of lower quality trees because of high grading or selection harvest. |
| 13 | <u>Seed-tree/shelterwood harvest</u> – Crop trees are harvested leaving seed source trees either in a shelterwood or seed tree. Also includes the final harvest of the seed trees. |
| 14 | <u>Commercial thinning</u> – The removal of trees (usually poletimber sized) from poletimber-sized stands leaving sufficient stocking of growing stock trees to feature in future stand development. Also included are thinning in sawtimber-sized stands where poletimber-sized (or log-sized) trees have been removed to improve quality of those trees featured in a final harvest. |
| 15 | <u>Timber Stand Improvement (cut trees only)</u> – The cleaning, release, or other stand improvement involving non-commercial cutting applied to an immature stand that leaves sufficient stocking. Use code 50 for herbicide, girdling, and other TSI treatments that do not involve cutting. Use code 14 for commercial thinnings. |
| 20 | <u>Site preparation</u> - Clearing, slash burning, chopping, disking, bedding, or other practices clearly intended to prepare a site for either natural or artificial regeneration. |
| 30 | <u>Artificial regeneration</u> - Planting or direct seeding has resulted in a stand at least 50% stocked with live trees of any size. |
| 40 | <u>Natural regeneration</u> - Growth of existing trees and/or natural seeding has resulted in a stand at least 50% stocked with live trees of any size. |
| 50 | <u>Other silvicultural treatment</u> - The use of fertilizers, herbicides, girdling, pruning or other activities (not already listed above) designed to improve the commercial value of the residual stand. |

ITEM 2418, 2420, 2422 TREATMENT YEAR 1, 2, 3 (CORE 2.4.18, 2.4.20, 2.4.22)

Record the year in which TREATMENT 1, 2, and 3 occurred.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 4 digits

Values: Since the previous plot visit, or the past 5 years for plots visited for the first time

ITEM 2423 PHYSIOGRAPHIC CLASS (CORE 2.4.23)

Record the code that best describes the PHYSIOGRAPHIC CLASS of the condition; land form, topographic position, and soil generally determine physiographic class. As a rule of thumb, look over the annular plot area to determine physiographic class, but always use your best judgment when assessing any condition level variables.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 2 digits

Values:

- Xeric** Sites that are normally low or deficient in moisture available to support vigorous tree growth. These areas may receive adequate precipitation, but experience a rapid loss of available moisture due to runoff, percolation, evaporation, etc.
- 11 Dry Tops - Ridge tops with thin rock outcrops and considerable exposure to sun and wind.
 - 12 Dry Slopes - Slopes with thin rock outcrops and considerable exposure to sun and wind. Includes most steep slopes with a southern or western exposure.
 - 13 Deep Sands - Sites with a deep, sandy surface subject to rapid loss of moisture following precipitation. Typical examples include sand hills, sites along the beach and shores of lakes and streams, and many deserts.
 - 19 Other Xeric - All dry physiographic sites not described above.
- Mesic** Sites that have moderate but adequate moisture available to support vigorous tree growth except for periods of extended drought. These sites may be subjected to occasional flooding during periods of heavy or extended precipitation.
- 21 Flatwoods - Flat or fairly level sites outside flood plains. Excludes deep sands and wet, swampy sites.
 - 22 Rolling Uplands - Hills and gently rolling, undulating terrain and associated small streams. Excludes deep sands, all hydric sites, and streams with associated flood plains.

- 23 Moist Slopes and Coves - Moist slopes and coves with relatively deep, fertile soils. Often these sites have a northern or eastern exposure and are partially shielded from wind and sun. Includes moist mountain tops and saddles.
- 24 Narrow Flood plains/Bottomlands - Flood plains and bottomlands less than 1/4-mile in width along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces within a 1/4 mile limit. Excludes swamps, sloughs, and bogs.
- 25 Broad Flood plains/Bottomlands - Flood plains and bottomlands 1/4 mile or wider in width along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces. Excludes swamps, sloughs, and bogs with year-round water problems.
- 29 Other Mesic - All moderately moist physiographic sites not described above.
- Hydric** Sites that generally have a year-round abundance or over-abundance of moisture. Hydric sites are very wet sites where excess water seriously limits both growth and species occurrence.
- 31 Swamps / Bogs - Low, wet, flat forested areas usually quite extensive that are flooded for long periods of time except during periods of extreme drought. Excludes cypress ponds and small drains.
- 32 Small Drains - Narrow, stream-like, wet strands of forest land often without a well-defined stream channel. These areas are poorly drained or flooded throughout most of the year and drain the adjacent higher ground.
- 33 Bays and wet pocosins - Low, wet, boggy sites characterized by peaty or organic soils. May be somewhat dry during periods of extended drought. Examples include sites in the Lake States with lowland swamp conifers or the Carolina bays in the southeast US.
- 34 Beaver ponds
- 35 Cypress ponds
- 39 Other hydric - All other hydric physiographic sites.

ITEM R212 OPERABILITY

This variable focuses on the viability of operating logging equipment in the vicinity of the condition. Record the most limiting class code that occurs on each forest condition.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and
PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

0	No problems.
1	Seasonal access due to water conditions in wet weather.
2	Mixed wet and dry areas typical of multi-channeled streams punctuated with dry islands.
3	Broken terrain, cliffs, gullies, outcroppings, etc., which would severely limit equipment, access or use.
4	Year-round water problems (includes islands).
5	Slopes of 20 percent or more.

ITEM R213 WATER SOURCE

Record the code that best describes the water source that has the greatest impact on the condition. The water source must be within 1000 ft of the lowest numbered subplot center containing that condition in order to be coded.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and
PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

0	None - no water source within 1,000 feet
1	Intermittent water – seasonal and well-defined stream channel or body of water that is dry for long periods, but generally flows or contains water throughout the wet season
2	Permanent streams or canals less than 30 feet in width
3	Permanent streams or canals 30 – 199 feet in width
4	Permanent streams or canals 200 feet or larger in width
5	Permanent water in the form of deep swamps, bogs, or marshes less than 4.5 acres in size
6	Permanent water in the form of deep swamps, bogs, or marshes 4.5 acres or larger in size
7	Permanent lakes or ponds less than 4.5 acres in size
8	Permanent lakes or ponds 4.5 acres or larger in size
9	Other permanent water (includes ocean)

ITEM R214 DISTANCE TO WATER SOURCE

Record the distance to the water source from the lowest numbered subplot center containing that condition. Distances greater than 100 feet can be measured on the photo.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0,
PRESENT CONDITION STATUS = 1

Field width: 3 digits

Values:

000 – 100	Distance to nearest foot (taped on site)
150	101 – 200 feet
250	201 – 300 feet
*	*
*	*
*	*
950	901 – 1,000 feet
999	None within 1,000 feet

ITEM R215 SITE CLASS

Record the site class of the condition. If there is a site class curve in Appendix 4 for one of the site trees collected for the condition, then record 0 and the site class will be determined in the office. If none of the site trees collected for the condition have a site class curve in Appendix 4, then estimate the site class.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0,
PRESENT CONDITION STATUS = 1, and site trees not collected.

Field width: 1 digit

Values: 0-7

ITEM R216 FIRE

Record the presence or absence of fire on the condition since the last survey. Evidence of fire must occur within the subplot.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and
PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

0	No evidence of fire since last survey
1	Evidence of burning (either prescribed or wild fire)

ITEM R217 GRAZING

Record the presence or absence of domestic animal grazing on the condition since the last survey. Evidence of grazing must occur within the subplot.

When collected: If SIMILAR IDENTIFIED CONDITION CLASS = 0 and PRESENT CONDITION STATUS = 1

Field width: 1 digit

Values:

0	No evidence of livestock use (by domestic animals)
1	Evidence of grazing (including dung, tracks, trails, etc.)

ITEM R218 CONDITION LEVEL NOTES

Record notes pertaining to the condition as called for to explain or describe another variable and to identify special circumstances.

When collected: All condition classes

Field width: Alphanumeric character field

Values: English language words, phrases and numbers